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ABSTRACT

Designed to present interesting facts about science and to heighten the curiosity of primary age students, this book contains activities about the natural world and numerous black and white illustrations. The setting of parks and play grounds forms the basis of the activities in this guide. The activities unfold in a seasonal format, and examine the changes in living things that occur in fall, winter, and spring. The first section on fall includes a sassafras classification game, songs, directions for puppet making and maple leaf rubbings, a maple seed game, and an insect experiment. Fine arts activities and science experiments focus on signs of fall and winter in the second section. The third section highlights springtime and includes songs, stories and activities about science in spring. Additional directives are offered in the teacher/parent guide section for most of the activities. (ML)

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YOUNG SCIENTISTS EXPLORE

PARKS & PLAYGROUNDS

BOOK 10—PRIMARY LEVEL

by
LINDA PENN

illustrated by **ELAINE SCOTT**

cover design by **VANESSA FILKINS** and **TOM SJOERDSMA**

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PREFACE

Parks and playgrounds often form the recreational background of early education. Our book finds this everyday setting just the stimulus needed for exciting learning discoveries, leading young children to a better understanding of their world through science. The activities unfold in a seasonal format, following the natural course of a school year and taking advantage, as well, of predictable changes in living things that occur fall, winter, and spring.

In September, discovering a sassafras tree (pp. 2-4) growing near a school yard or park can be the focus of several natural science activities early in the school year. The tree will provide definite clues to its identity. It is one of the first to display brightly colored leaves, and the leaves grow in three distinct shapes. "Scratching and sniffing" the stem of a sassafras leaf, in any of its shapes, results in a delightful "citrus" smell. A pattern is given for preparing a "sassafras sample" the children can use for making crayon "rubbings" of the leaf shape. The rubbings can then serve as leaf-print clues to the whereabouts of this interesting and commonly seen tree. Once located, collected sassafras leaves will provide a variety of classification games when used with the sassafras sorter, described on p. 4.

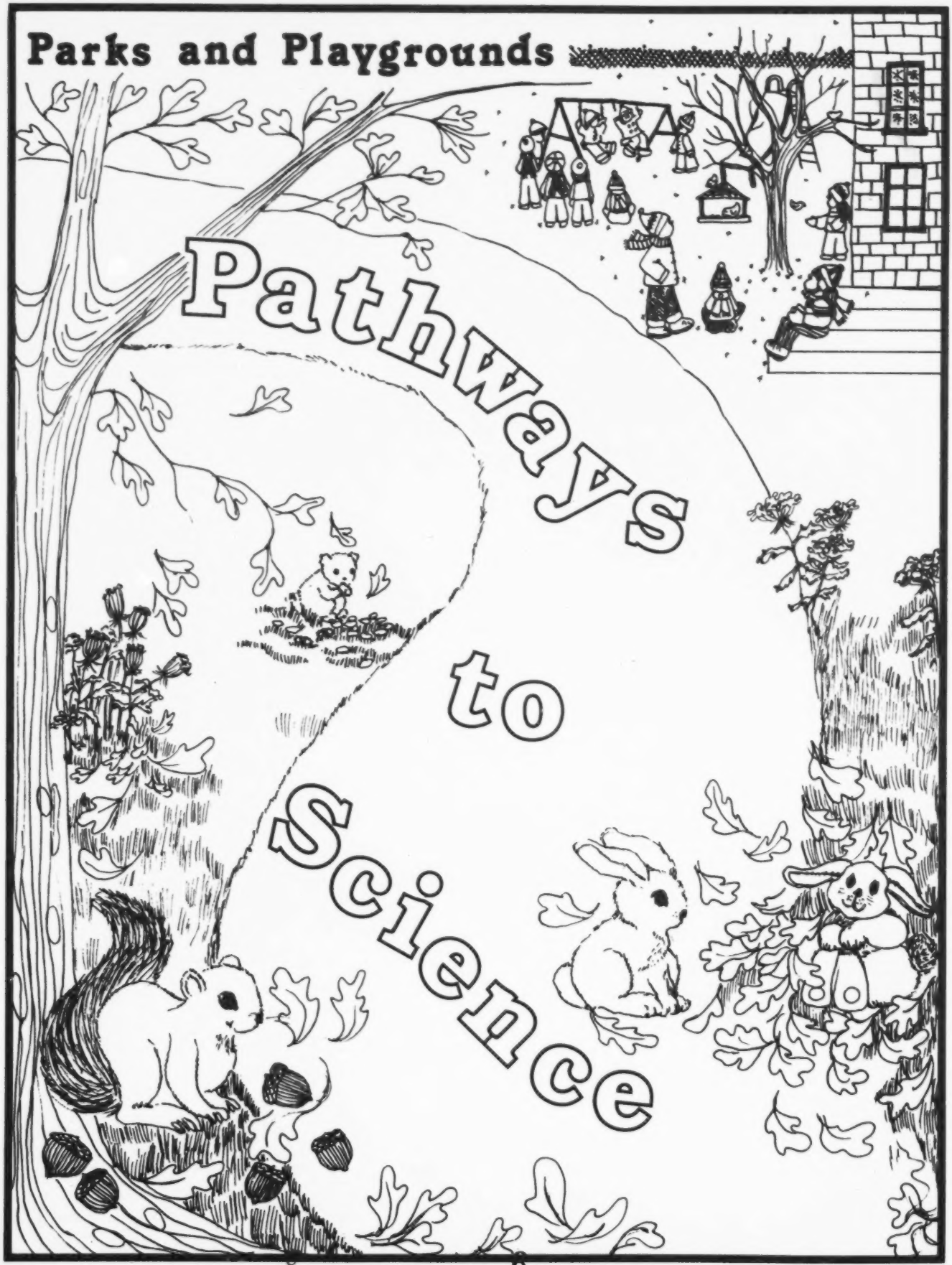
Next, book mascots, Skitter and Skatter Squirrel, are ready to demonstrate the simplest way to explore the widely grown maple trees. Leaf color and seed formation distinguish the maples during the fall of the year. Softwood maples join the sassafras in displaying their bright colors early. The hardwood maples often remain green-leafed well into the season, while ripening clusters of "spinner seeds" on their branches. Food-making green chlorophyll accounts for the "green" that is seen in the hardwoods. Bright red and yellow pigments advertise the absence of chlorophyll in the softwood maples. Sofie Softwood, p. 11, awaits the children's red and yellow crayoning, so she will show her true "pigment colors" before becoming a paper bag puppet. On p. 14 Mitchell Maple, too, requires coloring, but this time with "chlorophyll green," since Mitch is a hardwood leaf puppet. Upon completion, both puppets can be used with the "Science Sing-a-Long" verses found on pp. 9, 12 and 15. Crayon "rubbings" made from pictured samples of hard and soft maple leaves will provide the children with leaf-print clues. Using the "clues," they can explore for bright maple leaf pigments, as well as chlorophyll green, around the school yard or neighborhood park. Once discovered, the hardwood maples will also yield an abundance of seeds for playing Spin and Win, p. 16. With a minimum of practice, even the youngest child will enjoy success playing this game. It is great for developing eye-hand coordination—a real entertainer!

Your playground or park may have a blacktopped area near trees or wild weeds. If this is the case, chances are very good for spotting caterpillars on a sunny fall day. (They are drawn to the warmth of the black surface. See "Insect Science," p. 17.) These cute "little crawlers" can come in many shapes, colors, and sizes. Most belong to the insect family known as moths. Note: They do not feed on wood or clothing fibers but rather on the leaves of different trees and weeds. One of these, the Isabella Tiger Moth Caterpillar, popularly known as a woolly bear, is often seen on warm blacktop. The footnote on p. 18, under "Sing-a-Song of Woolly Bears," tells where to find more exciting science with these fuzzy balls of brown and black fur. This book will provide suggestions on caring for caterpillar cocoons over the winter, as well as a creative writing and/or art activity, "Cocoon Dreams," pp. 20, 21.

"Snowflake Science," p. 23, highlights activities centering around this winter phenomenon. It will help children better understand just what snow is. A turn of the page takes us to spring, which is often waiting around the corner after the last winter snowstorm. "Swing Set Science" gets the new season off to a good start with an action-teaching song and experiment. Then the swinging tree seed starters of spring, pollen-covered catkin flowers, are illustrated for easy identification on their parent trees. Children always enjoy stringing a make-believe catkin, p. 25, and singing its "swinging" spring song, p. 26. Finally, a flannel board flower story, "Stanley the Seed," introduces not only the tale of a seed told through the seasons, but also a special insect very much in evidence in spring—the helpful ladybug beetle.

This preview was designed for use with the Teacher/Parent Guide found inside the back cover.

Parks and Playgrounds

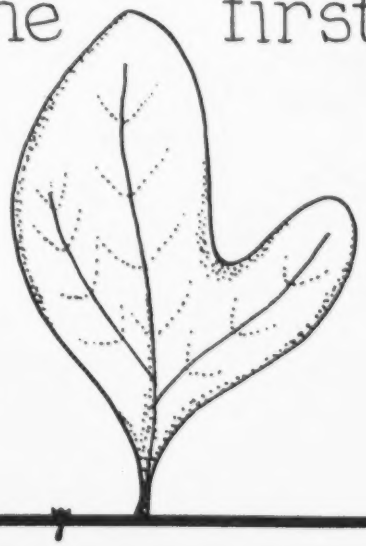


A Show of Color

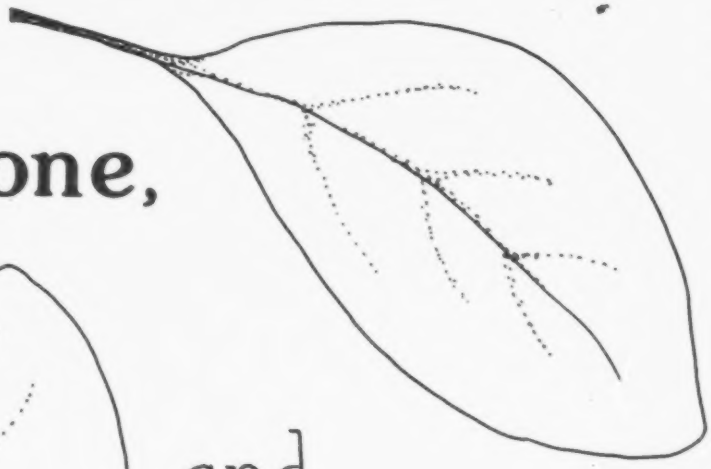
Discover science in September, out-of-doors as summer ends.

Watch as nature changes costumes right before-bright-fall begins.

The sassafras tree may be one of the first to give up its food-making green.



Its **one,**



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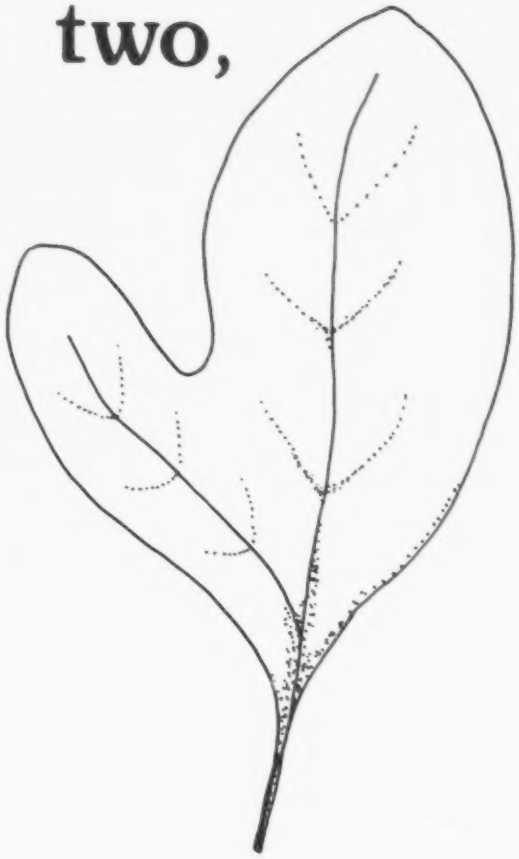
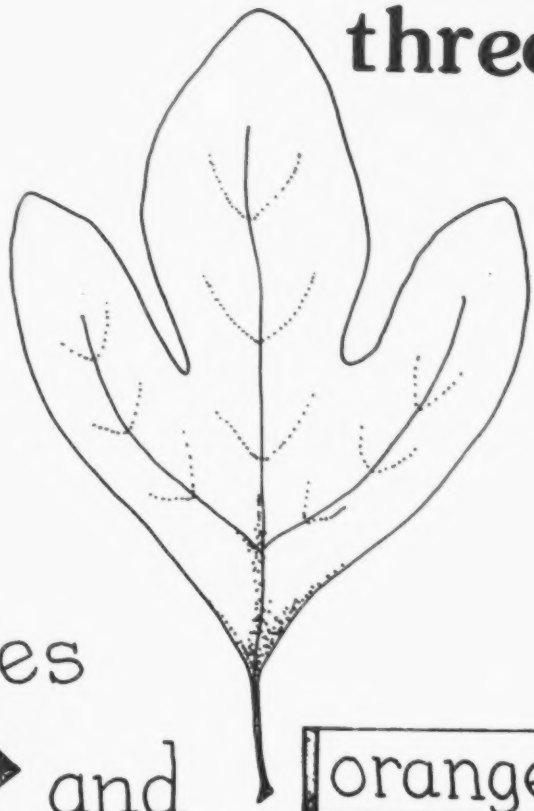


and **three**

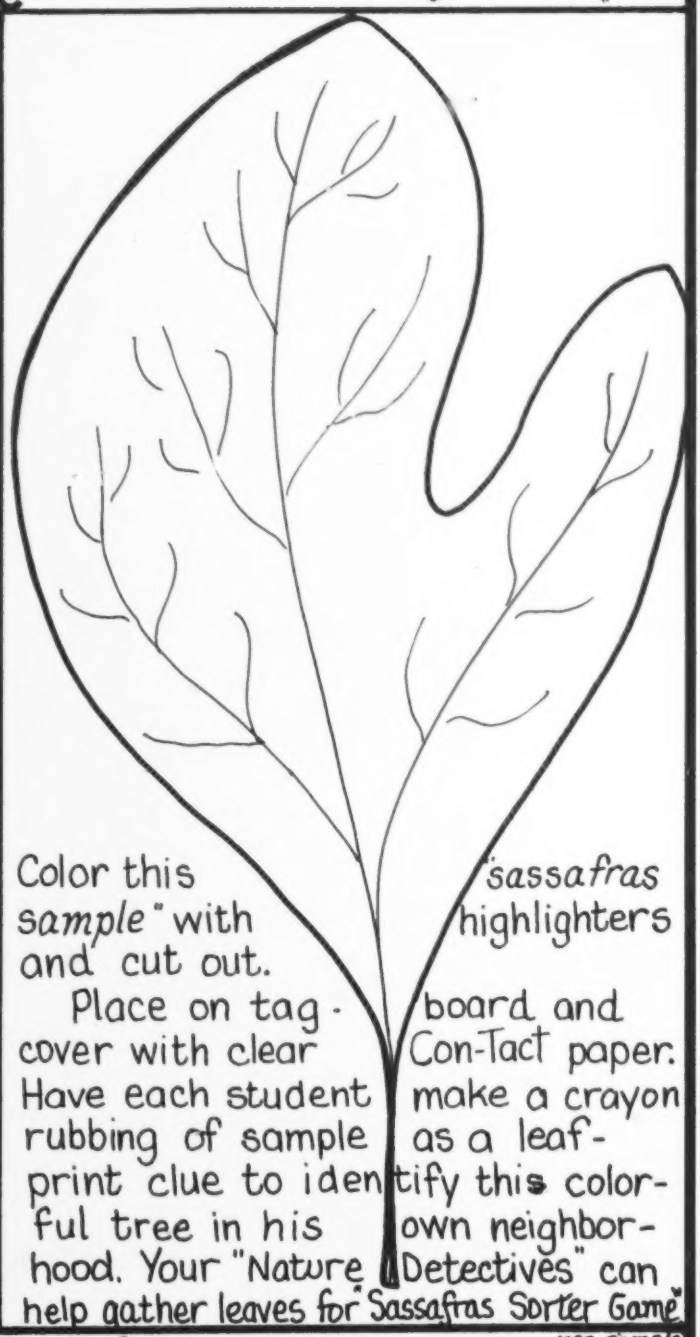


"fingered" leaves
bring yellow and orange
to the scene.

The Sassafras Sorter

Shoe box Science

Materials Needed:
A "man-size" shoe box
One "large-size" poster or tagboard (22" x 28")
One "copy" of pp. 2, 3, and 4 from this book.
Orange, Yellow and Green Highlighters + Crayons
Paper Glue (i.e. Rubber Cement)
Hand Stapler, Con-Tact Paper.

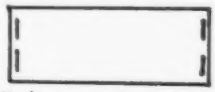


Color this "sassafras sample" with highlighters and cut out.

Place on tag-board and cover with Con-Tact paper. Have each student make a crayon rubbing of sample as a leaf-print clue to identify this colorful tree in his own neighborhood. Your "Nature Detectives" can help gather leaves for "Sassafras Sorter Game" (see sample in title)

Step 1 Cut poster board into five strips (4½" x 28").

Step 2 Fold three of the strips in half and staple at each end. Place stapled strips in box to form "3" box partitions. Staple each to side of box as shown.



Step 3 Cut three 9⅓" pieces from a strip. Color leaves on copy of pg. 3. Cut out and glue one leaf to top of each piece. Insert piece with glued-on leaf between each partition.

Step 4 Cut and glue remaining strip to cover staples on outside of box. Then color and glue leaves (pg. 2) and title (this pg.) to decorate game box.

You are ready to SORT SASSAFRAS by shape, by size and by color. (T/P, inside back cover)

Skitter
and Scatter Squirrel
make their home in
the trees.
Join them
to meet the maples
and have fun
with maple seeds.
Squirrels like to eat maple seeds.

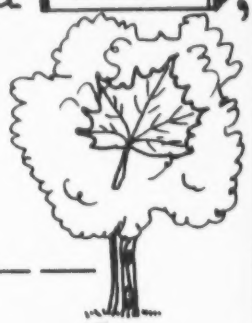
Meet the Maples

In early **fall**

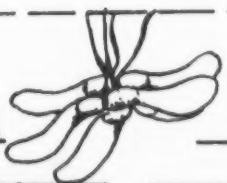
_____ _____ trees

start wearing yellow and red,

while their cousins

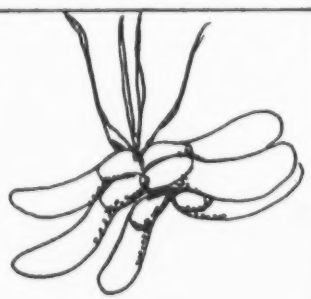


the _____ _____

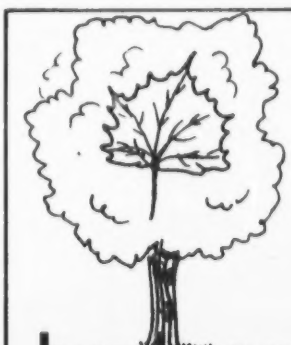


ripen _____ instead.

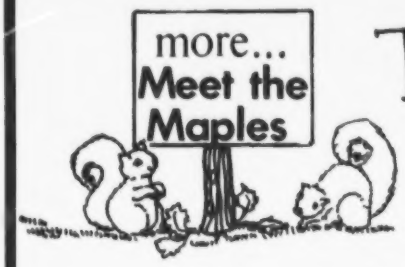
soft maple



seeds



hardwood maples



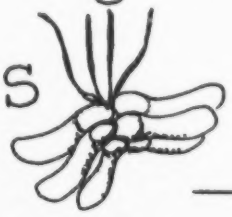
The maple tree seed spinners ripen both early and late,

_ _ _ _ _ _ _ _ _ _ _ _

in the springtime,

while _ _ _ _ _ _ _ _ _ _ _

_ _ _ _ _ _ _ wait.

When **fall** days grow shorter, hardwood maples ripen  _ _ _ _ _ _

still using green -leaf chlorophyll (KLOR-ah-phil) for their food-making needs.

Tree Science Insert

Did you know that a green plant is the ONLY living thing that makes its own food?

Chlorophyll is green. The green parts of a plant containing chlorophyll are **very important** to plant food making. Most trees are green plants, so trees are nature's **giant** food-making machines.

In late summer, as days grow shorter, many trees like the soft maple and sassafras begin taking a rest from food making. Green chlorophyll will disappear from the leaves. Brightly colored pigments that were there all along start showing, now that the green is gone.

Science Sing-a-Long

Verse I

Can you spot plant chlorophyll,
chlorophyll, chlorophyll.
It helps make food
so plants grow well.
You're right
if you pointed to green.

Verse II

Fall can mean a growing rest,
growing rest, growing rest,
and some leaves show
their colors best
when chlorophyll
fades from the scene.

Sung to the tune of:
"Here We Go Round the Mulberry Bush"

(Color soft maple leaf in background GREEN, YELLOW and RED.)

Puppet Pointers

by Skitter Squirrel

Step 1 Make two copies of this page and color both tree branches brown. Cut branches out.

Step 2 Glue each branch to front of a brown lunch bag, matching the bottom line * with corner of lunch bag. Extend top of branch under bag "bottom" flap, as shown here.→ Cut slit in branch through lunch bag as indicated in ** above.

** After gluing to sack, ← cut small slit here.

Finished Puppet:

Step 3 Copy pp. 11 and 14. Color Sofie Softwood, pg. 11, a combination of red and yellow. Color Mitchell Maple Leaf, pg. 14, chlorophyll green. Cut out each leaf exactly or use outer "simplified" cutting line. Attach each leaf to a bag bottom flap with glue or magnetic tape. Insert leaf stem in precut slit **. Color and cut out "name labels." Glue on puppet bag. Have a science sing-a-long, pp. 9 and 12, with Sofie and Mitch

Paper Bag Puppets

My name is **Sofie Softwood**

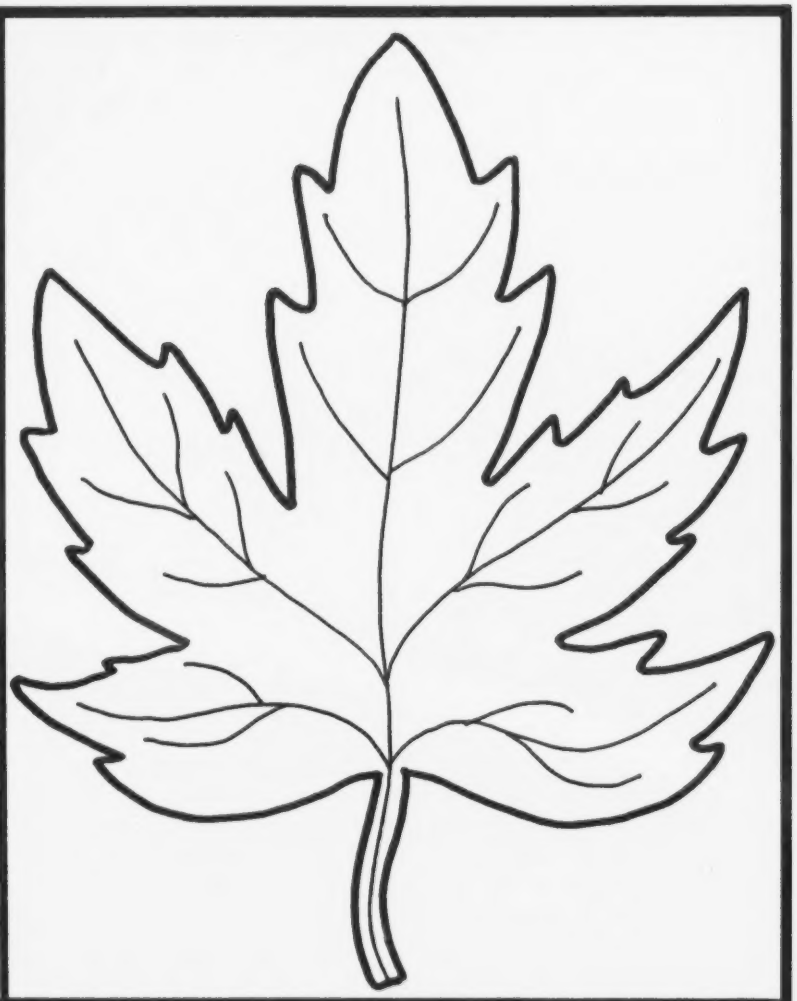
My home is a **Maple Tree**

Follow Skitter's directions to make a puppet out of me!

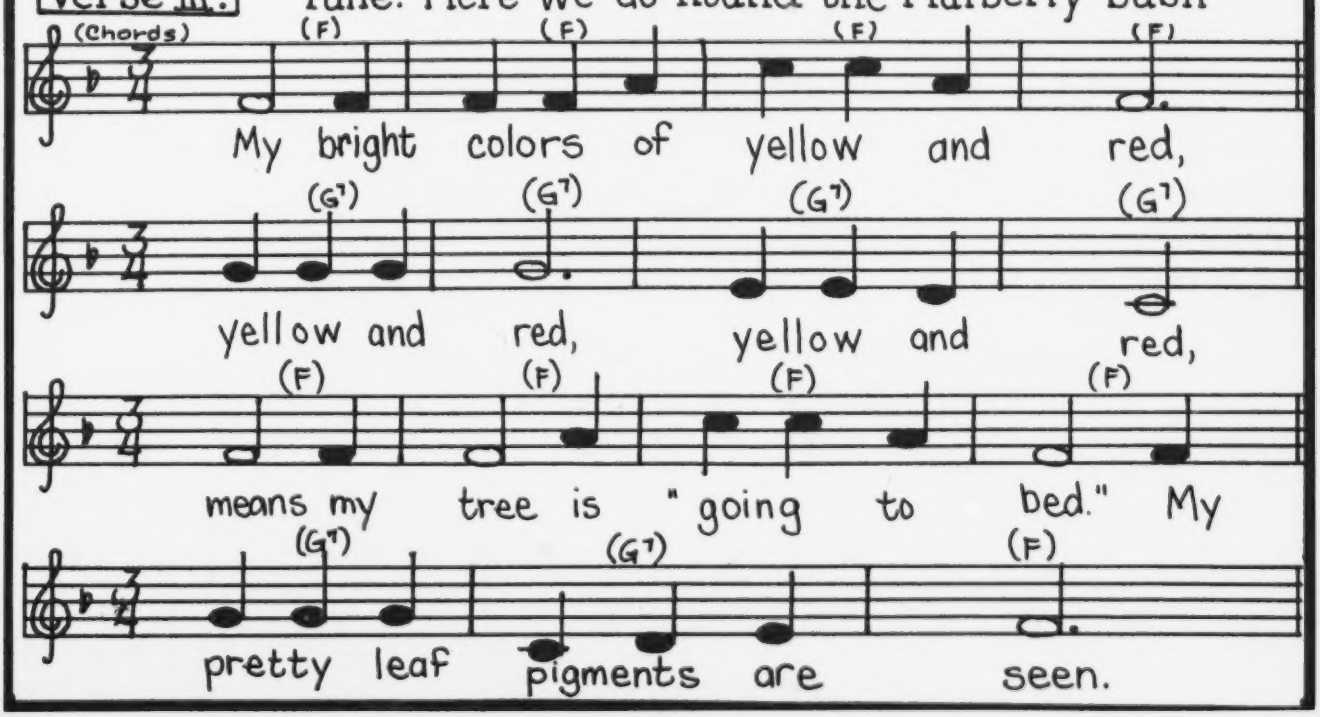
Sofie's Sing ~a~ Long

Cut out this soft maple leaf and follow directions given on pg. 13 for leaf print.

Children use red "rubbing", to locate soft maple tree leaves.



Verse III. Tune: "Here We Go Round the Mulberry Bush"


(Chords) (F) (F) (F) (F)
My bright colors of yellow and red,
(G7) (G7) (G7) (G7)
yellow and red, yellow and red,
(F) (F) (F) (F)
means my tree is "going to bed." My
(G7) (G7) (F)
pretty leaf pigments are seen.

Tree Detective Time

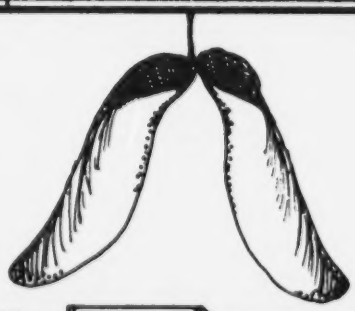
1. Cut out this hardwood maple leaf and its seeds.

2. Using rubber cement, lightly glue both pictures to pieces of tagboard. Cover with clear Con-Tact paper. (Follow leaf veins and seed markings with sharp pencil after Con-Tacting)

3. Place prepared pictures right side up on a smooth surface. Cover with lightweight sheet of paper.

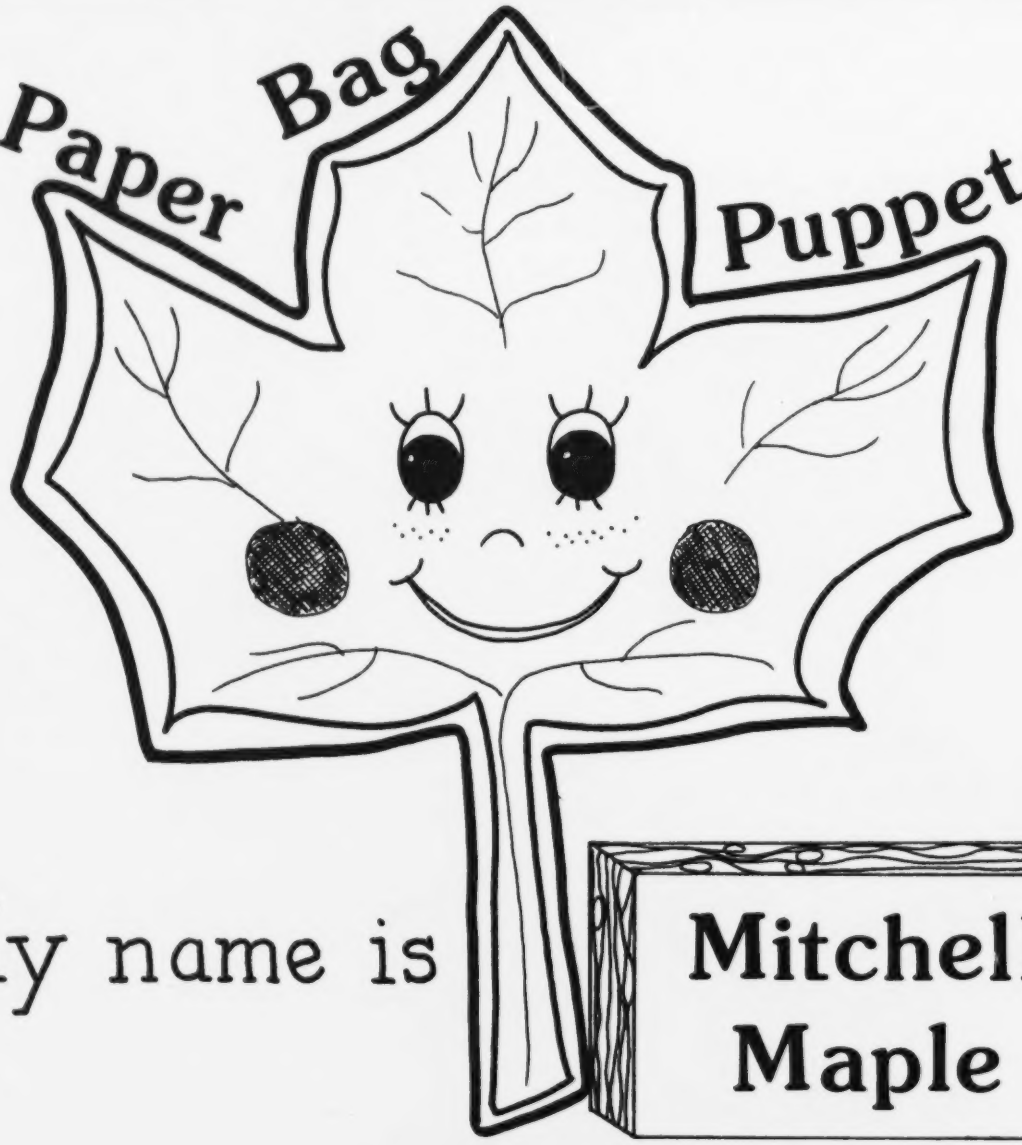
(Use green crayon for leaf rubbing)

4. Remove paper covering from a green and brown crayon. Have each student rub back and forth over prepared pictures with side of crayon.



Use brown crayon.

5. Using the leaf and seed "rubbing" like a "fingerprint" clue, children can check parks and playgrounds for evidence of hardwood maple trees in the fall. Encourage children to carefully select a few hard maple leaves and seeds for the classroom.



My name is **Mitchell Maple**

My home is a **Hardwood Tree**

In fall, trees like my maple ripen spinner seeds.

Maple Message Home

(date)

Dear _____

My science class is discovering some interesting trees. I will be using leaf-print clues to find these special trees.

Would you please press the leaves I collect between sheets of waxed paper with a warm iron? This "waxing" will keep them looking fresh.

Thank you for helping,

_____

(sign here)

cut here

More Music

♪ .... with Mitchell Maple

My tree's a hardwood, strong and tall,
strong and tall, strong and tall.
My leaf stays green right into fall
when maple seed "spinners" are seen.

Spin and Win

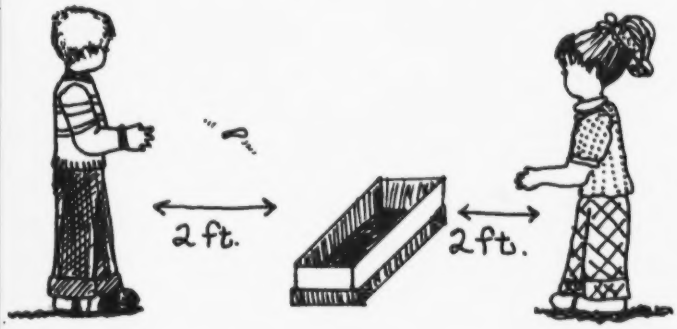
Materials Needed

Maple "Spinner" Seeds
Four to eight per player
Collect natural seeds or use "substitutes," this page.

Large "man-size" Shoe box

How to Play

Place shoe box lengthwise between two throwing lines (as pictured).



[Distance from box can be shorter for younger players]
Each child attempts "in turn" to spin a seed into the box.
A point is scored only if seed "spins" into box.
Falling in without "spinning" does not score a point but merits a second chance to score on the same turn. Can be played as a team sport or individually.

Highest score wins!

Maple Seed Substitutes

Glue this section to tagboard. Cut out seeds.

The Blacktop Bear

When maple seeds are spinning
and early fall is in the air,
be on the lookout
for the fuzzy "Blacktop Bears."

Some crawling caterpillars
looking for a special spot,
may even cross your playground....
believe it or not!

Now, should the fuzzy "crawlers"
be colored black and brown.
The world famous Woolly Bear
may have been found.

Insect Science

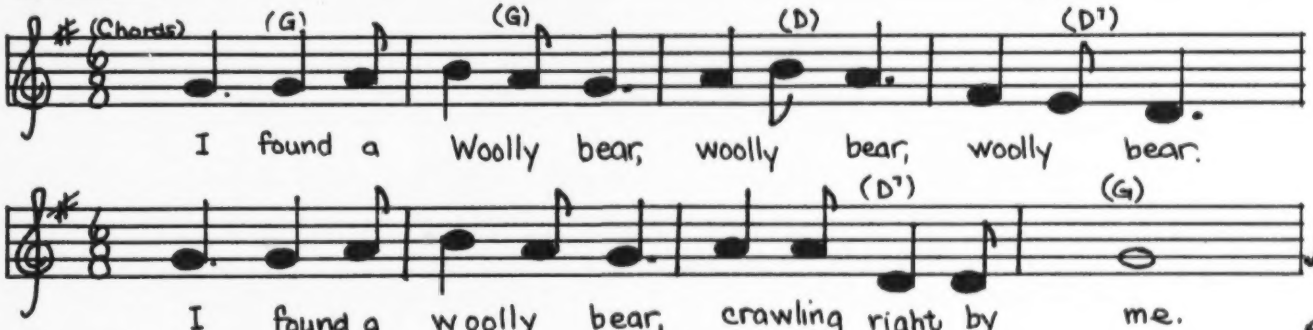
To Prove: Anything black absorbs or soaks up the warming rays of the sun. That is why fuzzy moth caterpillars are often found crossing blacktop on sunny days in early fall.

Materials Needed: Pieces of black and white paper.

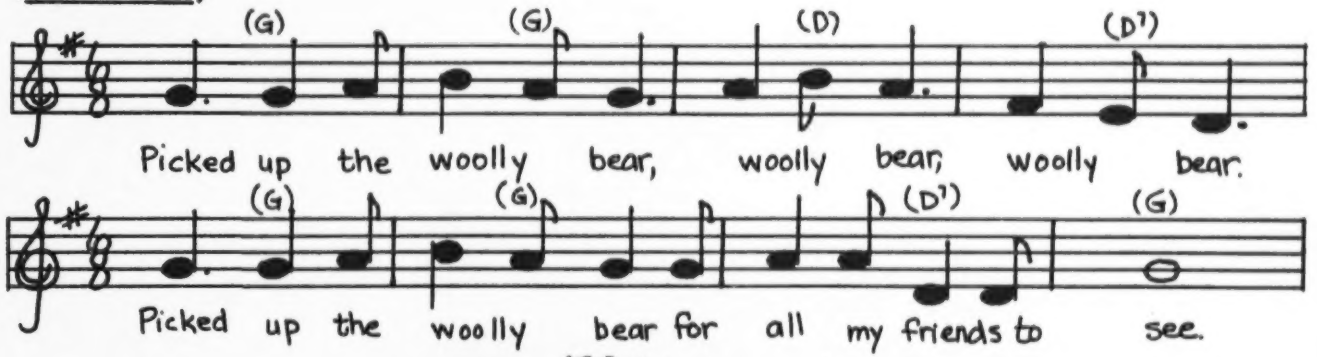
Directions: Place papers in direct sunlight. After several minutes, have children touch both papers to feel the warmth absorbed by only the black piece.

Sing-a-Song of Woolly Bears

(Verse I)



(Verse II)



(Verse III)

Made it a special house
special house, special house.
Made it a special house
and filled it full of leaves.

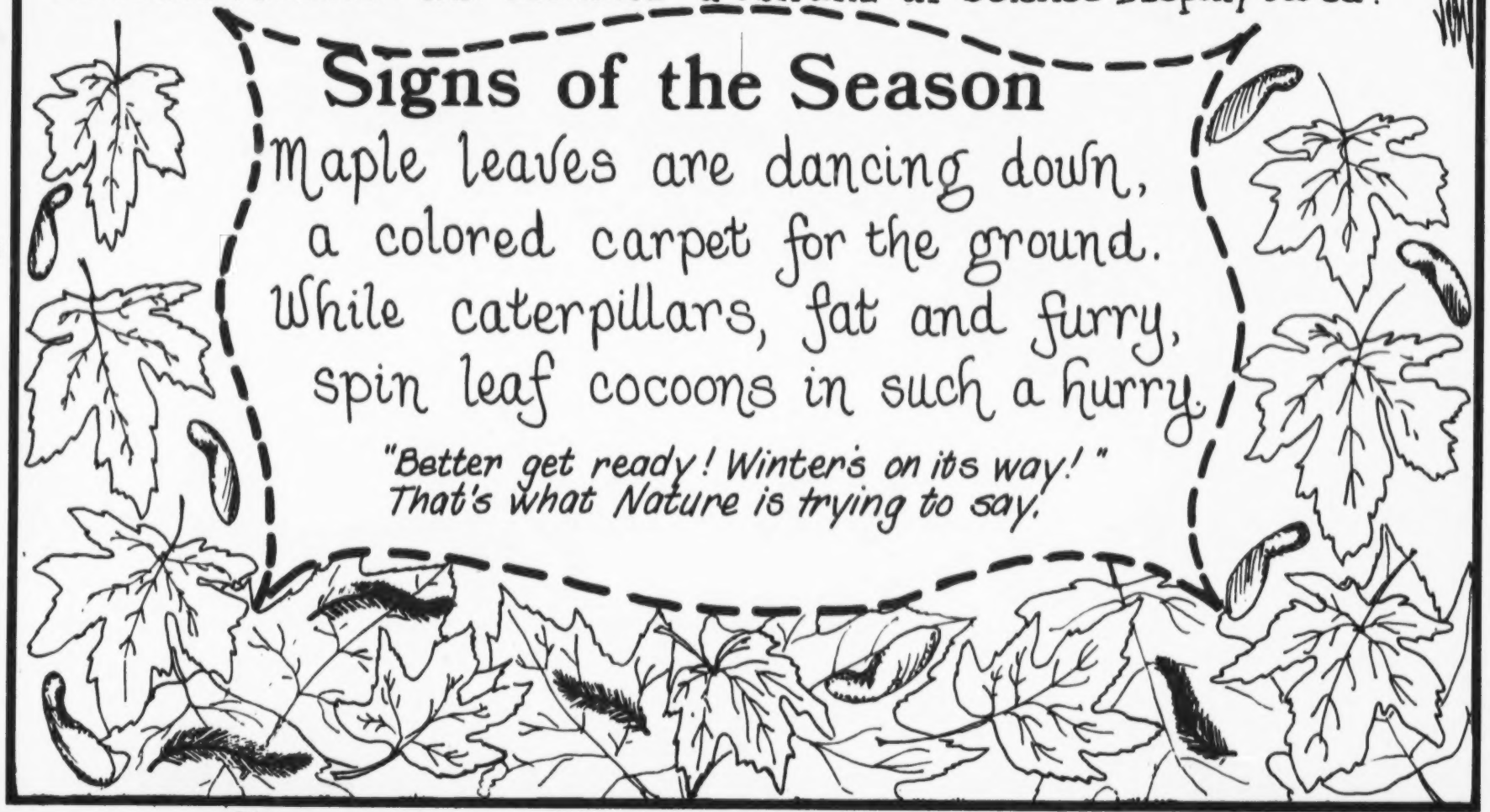
(Verse IV)

It's time for Woolly's **winter** nap,
winter nap, **winter** nap,
It's time for Woolly's **winter** nap
Curled up as it can be.

Footnote: For more information on the interesting Woolly Bear, as well as a "hands-on" caterpillar experiment, see Book 5, YOUNG SCIENTISTS EXPLORE SEASONS, pages 20 and 21.

More Art / Nature's Way

Children cut out scroll with printed poem and glue it in the center of art paper. Colorful waxed leaves, ("Maple Message Home," p. 15) can be used as *"dancing maple leaves"* alongside poem and as a *"colored carpet"* on the bottom. In fall the seed heads of easily located wild grasses make wonderful "furry" caterpillars. Glue several among leaves on "ground." FINISHED PICTURES CAN DECORATE a "NATURE-al" Science Display Area!

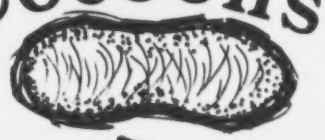


Signs of the Season

Maple leaves are dancing down,
a colored carpet for the ground.
While caterpillars, fat and furry,
spin leaf cocoons in such a hurry.

"Better get ready! Winter's on its way!"
That's what Nature is trying to say.

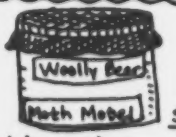
Caterpillar Cocoons



IT'S A FACT THAT:

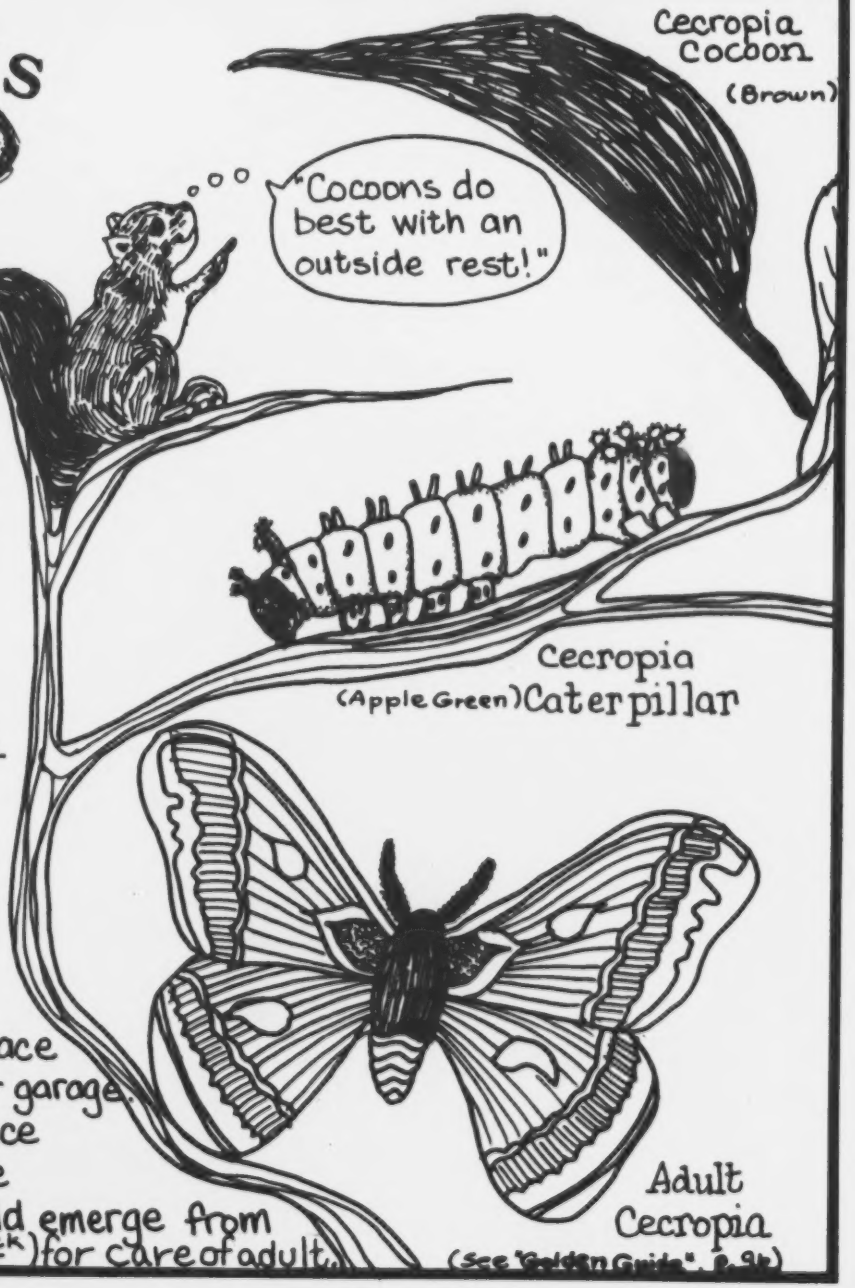
Several types of leaf-eating moth caterpillars may be found by children in fall. Most of these caterpillars are ready to spin a silken over-wintering cocoon. One variety of caterpillar is pictured here, as well as the beautiful moth it will become. Cecropia moths and many of their close relatives are commonly seen in parks or around playgrounds with "even a single tree."

Caterpillar/Cocoon Care



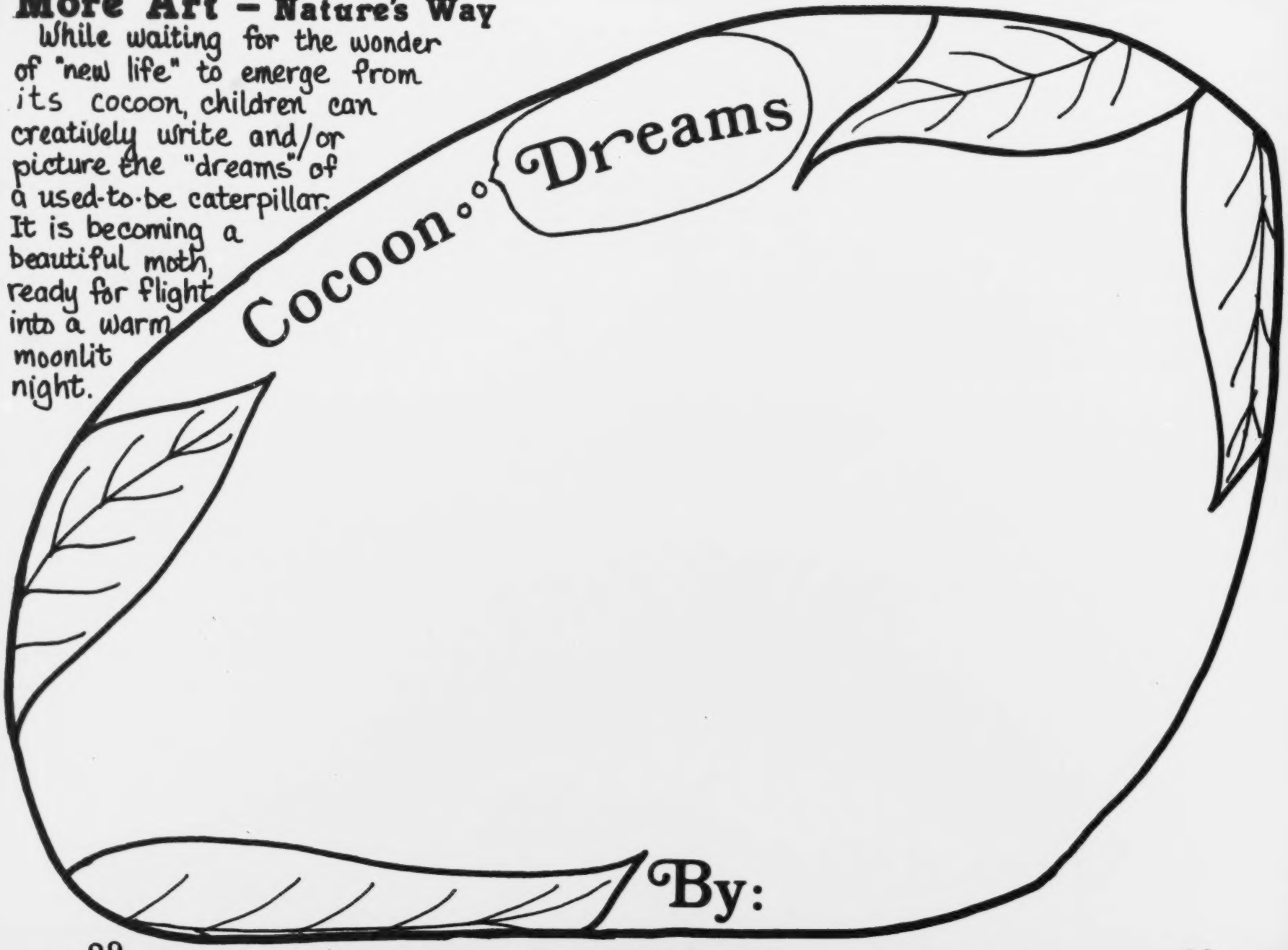
sample

1. Place caterpillar in a plastic container like those used for whipped topping. (The larger the better.)
2. Cut away plastic in center of lid and use the leftover "rim" to hold a piece of dark nylon netting in place on top of the container.
3. Add some "healthy" looking leaves from any trees in the area in which the caterpillar was found.
4. Seven days after caterpillar has formed a cocoon, place container outside in protected area like a porch or garage.
5. After six weeks of winter cold, bring inside. Place paper towel under cocoon in container and "mist" the "towel" occasionally with water. An adult moth should emerge from the cocoon in 6 to 8 weeks. See T/P Guide (inside back cover) for care of adult.



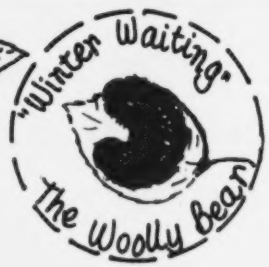
More Art – Nature's Way

While waiting for the wonder of "new life" to emerge from its cocoon, children can creatively write and/or picture the "dreams" of a used-to-be caterpillar. It is becoming a beautiful moth, ready for flight into a warm moonlit night.

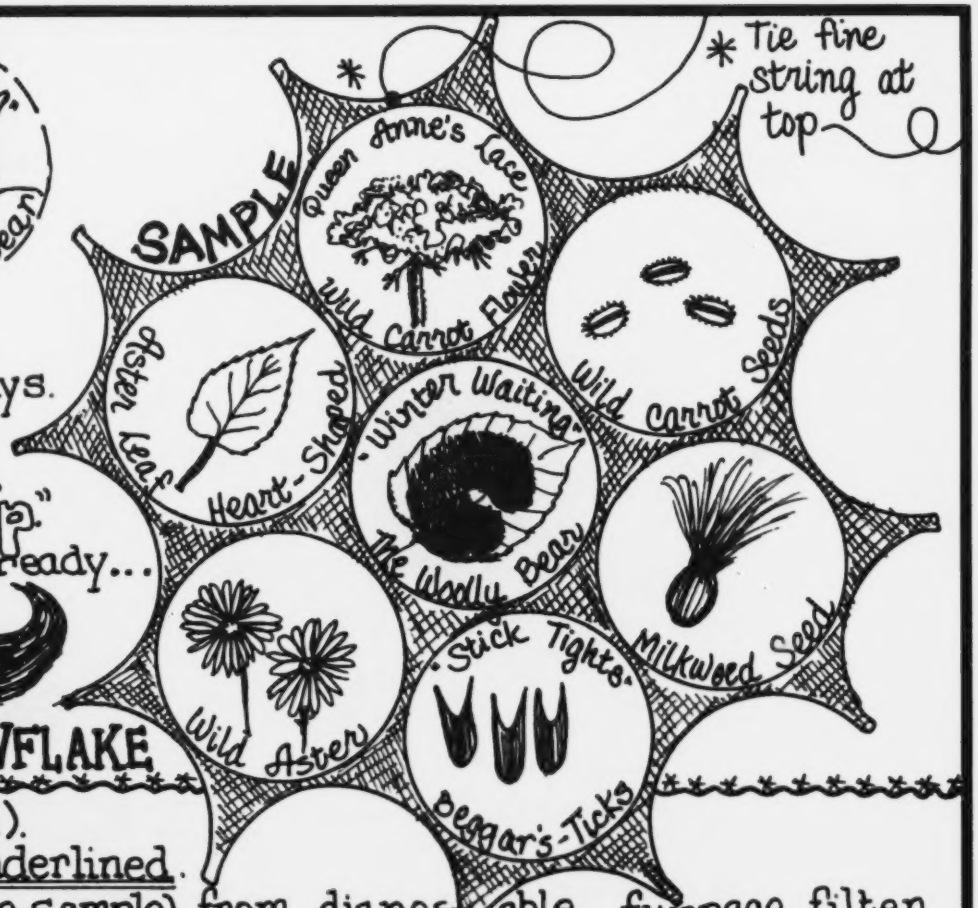


21

Art Nature's Way



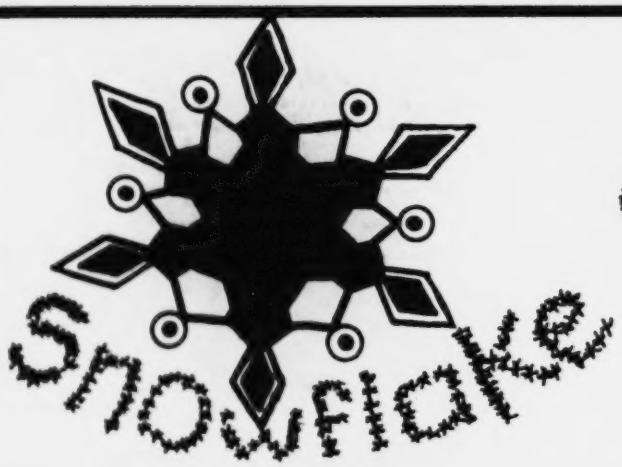
In the **fall**, plants and animals get ready for **winter** in different ways. After Woolly Bear caterpillars finish feeding on different wild weed plants, they curl up for their **winter nap**." Wild weeds are also busy getting ready... their flowers form seeds.

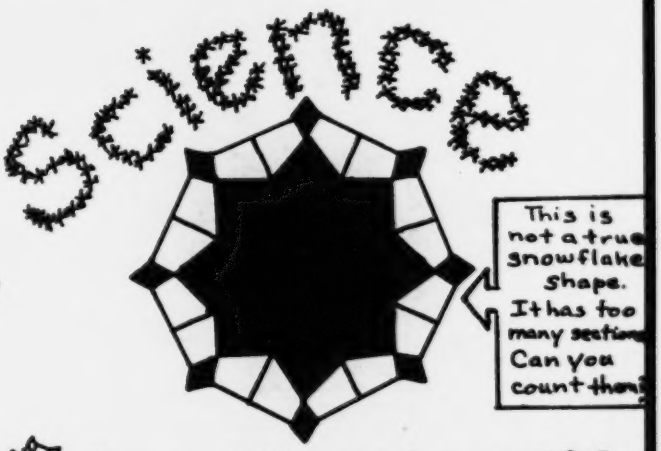


To Make a "Winter Waiting" SNOWFLAKE

1. Photocopy this page (one per child). Required materials are **double** underlined.
2. Cut metal "snowflake frames" (see sample) from disposable furnace filter.
3. *Tie a loop of white thread or fishing line on the top of each "snowflake."
4. Cut two 5" squares of clear Con-Tact paper per child. Each child removes the backing from one square and places it on a flat surface—sticky side up. Then child puts the snowflake frame on top of his "sticky" square.
5. Child cuts out both Woolly Bear picture circles at top along broken line. Place one picture "face down" on sticky surface in the center of snowflake. Glue the second "face up" on top of it.

SIMPLE-TO-FOLLOW FINAL STEPS GIVEN IN TEACHER/PARENT GUIDE (inside back cover).





IT'S A FACT THAT:

1. **Snow begins as** a tiny **dust** speck moving around inside a cold cloud, gathering ice crystals (KRIS-stuls) as it moves.

LOOK FOR DUST SPECKS IN A BEAM OF SUNLIGHT SHINING INTO A ROOM.

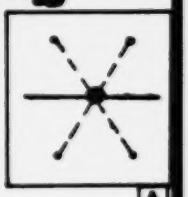
2. **Salt and sugar are crystals.** Place some salt on one of the black "snowflakes" above, and sugar on the other. Look at these crystals with the aid of a simple 30x microscope lens. ("Scope" available through Discovery Corner. See T/P Guide (inside back cover).

RUB A FEW CRYSTALS OF SUGAR BETWEEN DRY FINGERS. CAN YOU FEEL THE CRYSTAL SHAPES?

3. Grow beautiful crystals at home or in the classroom with the help of a Discovery Corner Crystal Kit. See T/P Guide (inside back cover) for details. This fascinating project is easy-to-do but <u>requires adult supervision</u>.

4. Some of **the most beautiful snowflakes are six-sided** ice crystals. **No two** snowflakes are ever **the same.**

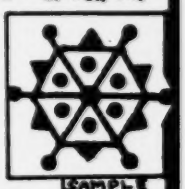
5. Create your own six-sided snowflake drawings. Begin with a square sheet of white paper and follow these easy steps.


A

Draw a line across the middle of the paper. (FIG. A)

Make a small circle in the center of this line. (FIG. A)

Place two dots above and two dots below the drawn line. Connect the dots forming an "X." (FIG. A)


SAMPLE

Now, count the six sections of your design.

Finish by adding decorative shapes, <u>one at a time</u>, <u>to each of the six sections</u>. (See "sample.")

Have fun creating beautiful "snowflakes" as different as nature's own!

Swing into Spring

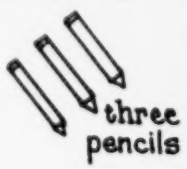
(Chords) (C) (C) (F) (G7)
Swinging swinging up so high.
(G7) (G7) (C) (C)
Reach your feet up to the sky.
(C) (C) (F) (F)
Push them out and pull them back.
(F) (C) (G7) (C)
You'll go higher just like that.

Swing Set Science

To PROVE: When we "pull" our legs back, and "push" our legs out, we cause a "swinging" motion. If we hang our legs down straight, we will stop the motion.

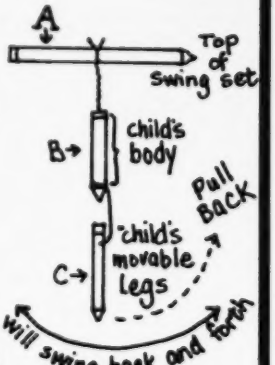
Materials Needed:

- 12-inch piece of string
- 6-inch piece of string



Directions:

Tie 12-inch string to the middle of pencil "A" and then near top of pencil "B". Tie 6-inch string near pencil point of "B" and to top of pencil "C". Pull "C" back at pencil point. Watch swinging motion!!



Swinging Seed Starters

Tree seeds we enjoyed in **fall**
can have their start in **spring**
when flowers

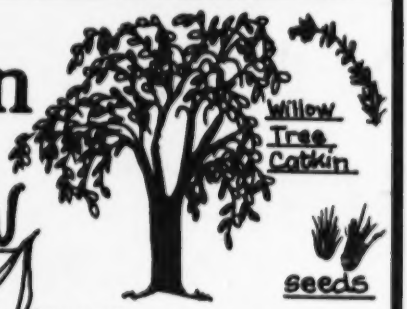
growing on the trees
make a very special thing.
This special "thing" is pollen which often rides the wind
to be caught by other flowers

so new seeds can begin.
Pollen flowers, known as catkins,
grow on certain trees each **spring**.
These caterpillar look-a-likes, are tiny blossoms on a string.

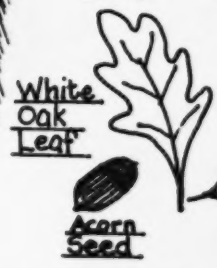
String a Catkin: ① Copy page. Have children color squares yellow. ② Cut out squares and paper punch center. ③ With pencil, "poke" a hole in styrofoam pieces, 7 per child. ④ Tie one of these at end of a 12" piece of yellow yarn. ⑤ Children string yellow squares alternating with styrofoam. ⑥ After stringing, tie a loop so catkin can be worn on finger.

Time ○	to ○	sing ○ (p. 26)	while ○	you ○	Swing ○	a catkin.

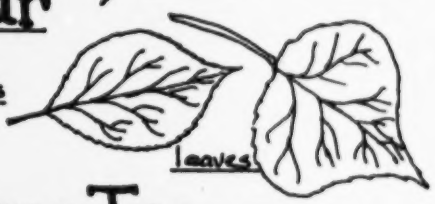
Catch-a-Catkin

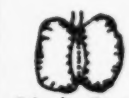


In spring, the Willow leaves

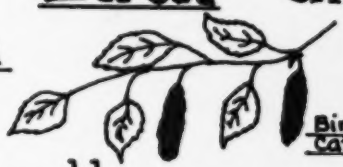


Oak and Poplar



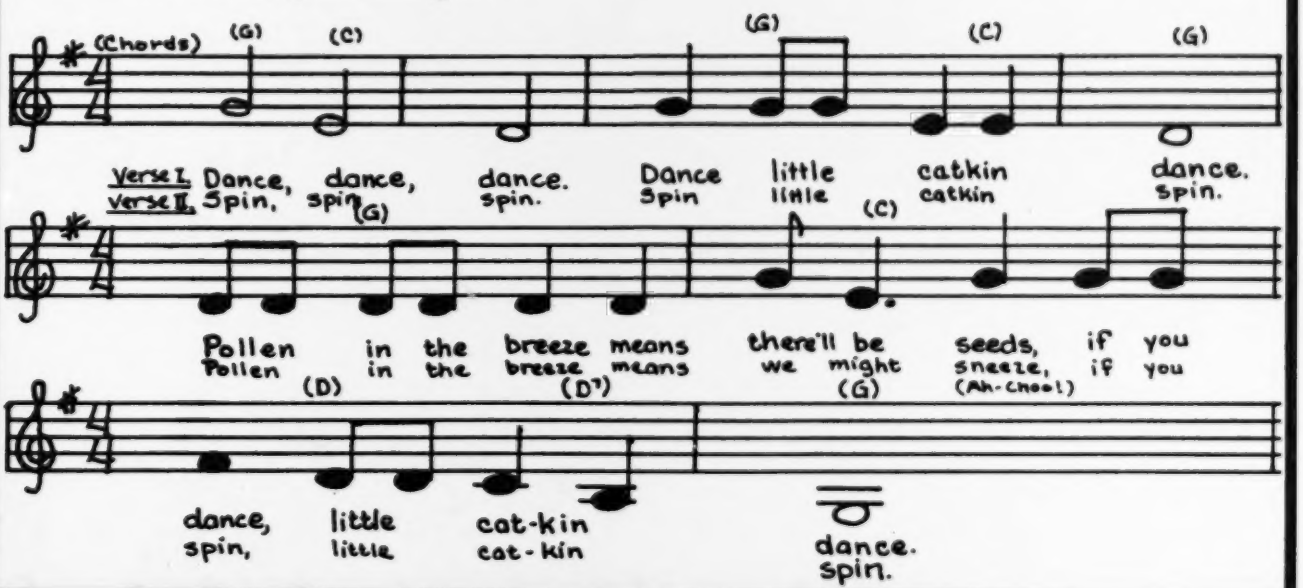


Birch and Hickory Trees



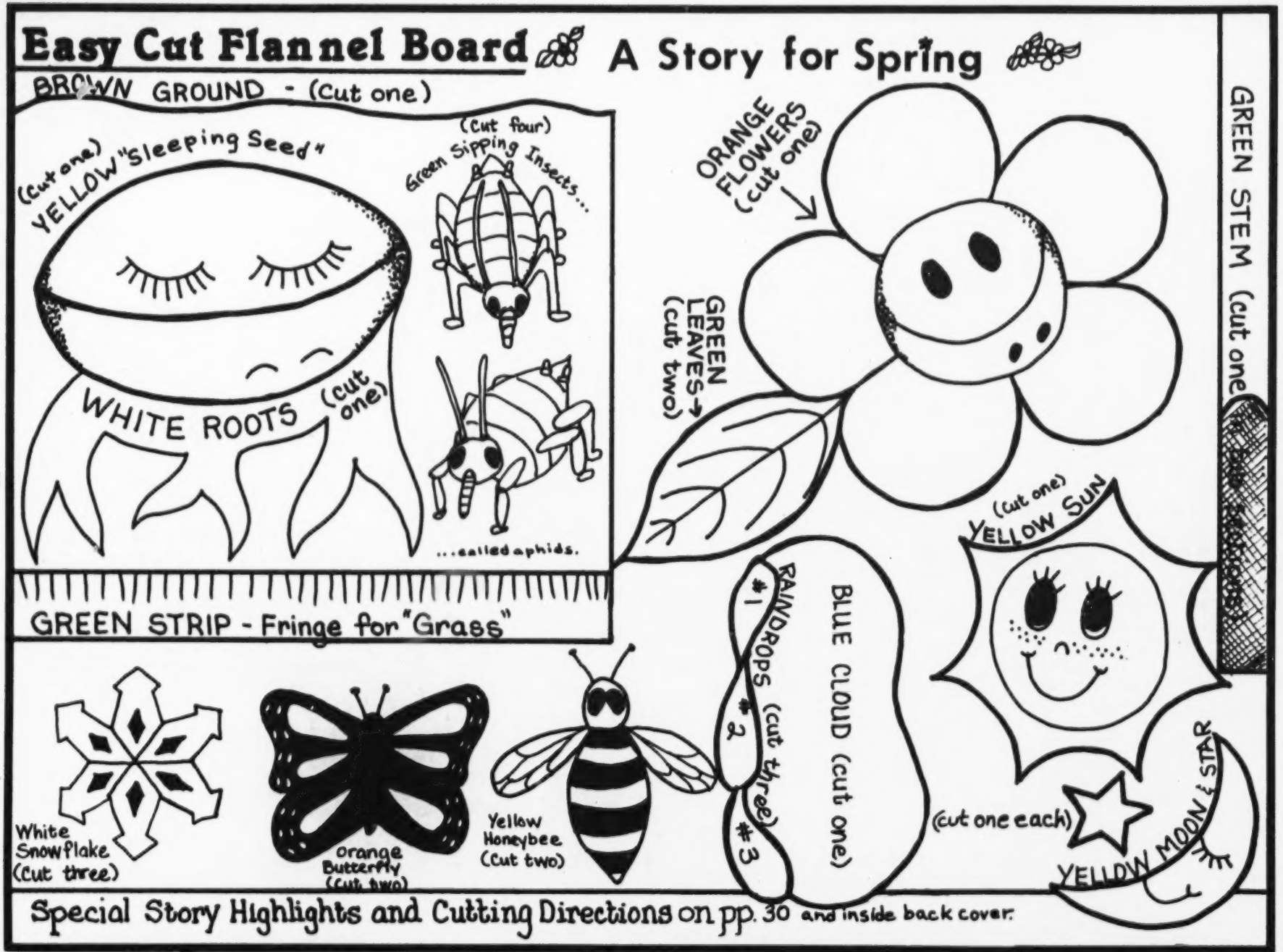
all wear flower catkins
filled with pollen for new seeds.
[Pollen can also be the cause of Ah-Choo
~ a springtime sneeze]

Science Sing-a-Long


(Chords) (G) (C) (G) (C) (G)
Verse I. Dance, dance, dance. Dance little catkin dance.
Verse II. Spin, spin spin. Spin little catkin spin.
(G) (C)
Pollen in the breeze means there'll be seeds, if you
Pollen in the breeze means we might sneeze, if you
(D) (D7) (G) (Ah-Chool)
dance, little cat-kin
spin, little cat-kin
dance.
spin.

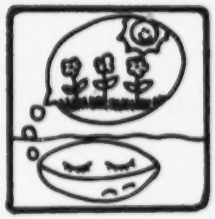
Easy Cut Flannel Board

A Story for Spring


BROWN GROUND - (Cut one)
(Cut one) YELLOW "Sleeping Seed"
(Cut four) Green Sipping Insects...
WHITE ROOTS (cut one)
...called aphids.
GREEN STRIP - Fringe for "Grass"
ORANGE FLOWERS (cut one)
GREEN LEAVES (cut two)
GREEN STEM (cut one)
(Cut one) YELLOW SUN
BLUE CLOUD (cut one)
RAINDROPS (cut three) #1 #2 #3
(cut one each)
YELLOW MOON & STAR
White Snowflake (Cut three)
Orange Butterfly (Cut two)
Yellow Honeybee (Cut two)

Special Story Highlights and Cutting Directions on pp. 30 and inside back cover.

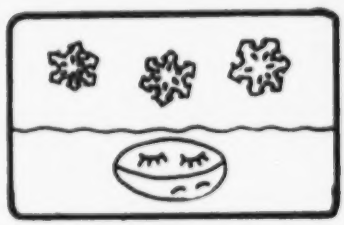
Stanley the Seed

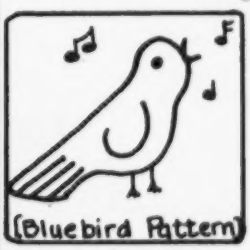


①

A sleeping seed
named Stanley
lay beneath the ground...
Dreaming of that special day
when spring would come to town.

He waited through the
winter months with all their ice and snow.
Until the sun warmed up his bed,
Stanley knew he mustn't grow.





②

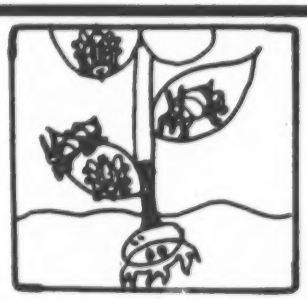
Stanley was resting quietly
when one warm day he heard....
The "song of spring," a bluebird sings,
for he's a springtime bird.

"It's time to grow!" said Stanley
as he set some white roots down.
Then pretty soon, his tender stem
had poked up through the ground.
Golden sun and warm spring showers
changed Stanley the seed so small.
It's hard to believe, little seeds
grow healthy plants, so green and tall.

③

Stanley soon grew a "bud"
that became a lovely flower.
He would smile at the sun
'til the day was done
and sleep through the nighttime hours.
Now Stanley loved his flower life.
He made many special friends,
like honeybees and butterflies
THEN
an enemy moved in!!

4



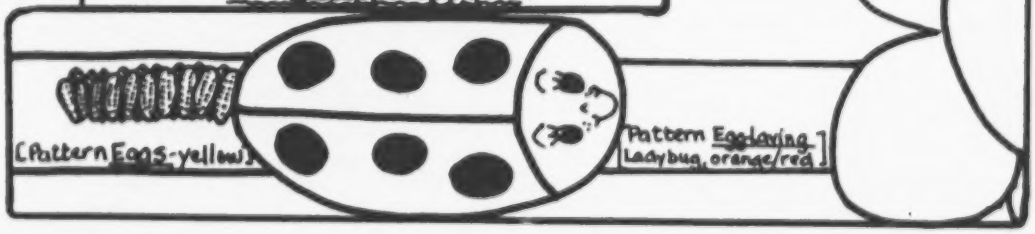
They "sipped" away at his "juicy" leaves!
Poked **holes** in Stanley's tender stem!
If something didn't stop them soon
it would be the end of him!!

5

Then a hungry ladybug beetle,
with "wing covers" held up high,
[ONLY BEETLES CAN FLY THAT WAY]
noticed Stanley's problem,
as she was flying by.
This ladybug's named by the spots that you see.
(Try to count them as she's flying in.)
It didn't take long....
those bad insects were gone!
for "Six Spots" quickly ate all of them!

6

Now Stanley's a happy flower again.
Six Spots wants "Stan" to stay that way.
So, she's "laying" something along his stem.
They're her special ladybug eggs!



"She saved my life!" thought Stanley.
"I think all the world should know!"
"Ladybugs can be a plant's best friend."
"Without their help, we might not grow!"

7

While Six Spots rested on his leaf,
Stanley stood wondering what to do.
Then he puffed his petals
in a "pretty smile."
That's how Stanley the Flower said,

THANK YOU!

Making the Most of Stanley's Story

Science In Spring

Inside and Outside Experiences

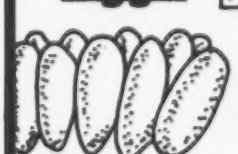
A. Using the "patterns," make a flannel board flower story. Make two copies of p.21 and one copy each of pp. 28-29. Simple-line patterns for the , , , stem, , , grass, , , , , , ground and roots can be cut directly from felt or backed with Velcro, as detailed below.

Smaller, more difficult-to-cut patterns, like "sipping" insects, , , honeybees, , "flying" ladybug, and , should be colored, if specified, and glued to tagboard. Cut out "roughly" with tagboard backing, and glue faceup to a circle of velcro. "Circle sizes" for various pieces are shown on right. →

Finish the flannel board project with "Story Cards." Details given in T/P Guide, (inside back cover).

B. Plant some easy-to-grow flower seeds like marigolds, dwarf sunflowers, etc. For best results, check date on package to make sure seeds are fresh. Follow package directions for starting seeds "inside."

C. Looking for Ladybugs: Spring is the best time to find adult (grown-up) ladybugs and their unusual-looking young. Clip and save the "Life Cycle Clue Cards" to use while searching for these insect helpers.

Eggs [A]	Young Larva [B]	Pupa [C]	Adults [D]
 (magnified)	(actual size)		

MORE EXCITING LADYBUG FACTS in T/P GUIDE (inside back cover).

TEACHER/PARENT GUIDE

Don't miss the introductory help provided by the preface, p. ii. Utilizing both the preface and the information contained here will insure maximun effectiveness with these science activities for young children.

THE SASSAFRAS SORTER (p. 4)

Protect leaves to be used in classification games by machine laminating or covering with clear Con-Tact paper after gluing to tagboard. Parents can also help preserve leaves by "waxing" (see page 15). Prepared leaves can be "sorted" by shape and then by size within each shape classification. Finally, they can be "sorted" by color to determine the variety of colors available. Simply change the "leader cards" between the three partitions (Step 3) to alter the type of sorting game being played with the box.

Extending Activity: As a math/science game, provide number cards for indicating "how many" sassafras leaves of each shape, size, and color.

MEET THE MAPLES (pp. 6, 7)

Answer Key: soft maple, hardwood maples, seeds, soft maples, hardwood maples, seeds

Extending Activities: More science fun with maples can be found in Book One, pp. 5-14 and Book Five, pp. 5-10, of the Young Scientists Explore Series, Primary Level.

THE BLACKTOP BEAR (pp. 17, 18)

Science in Action: An inexpensive colored guide to identifying woolly bears and the many varieties of caterpillars that can be found each fall has been published by Golden Press in their Golden Guide Series. It is entitled **Butterflies and Moths** and is available from most book stores.

CATERPILLAR COCOONS (pp. 20, 21)

Life After the Cocoon—The Adult Moth: Most moths are active at night and tend to rest quietly during the day, the best time for displaying the adult moth in the classroom. To prevent your newly emerged moth from damaging its beautiful wings at night, simply place the container in a cool spot overnight to keep the moth dormat and inactive. Another alternative is to remove the moth from the container and place it in a Ziploc plastic bag. Stand the bag in the bottom of a refrigerator overnight.

Extending Activities: Many of the large moths do not require feeding, so to positively identify a moth species, use the **Golden Guide** mentioned earlier. For further activities, Book Four of this series, **Young Scientists Explore Butterflies & Moths,** can directly involve young children in this exciting insect science.

Should the weather be warm when your moth emerges, it can be released at night. (Avoid daytime release because nocturnal insects are vulnerable to almost immediate predation by birds, if found flying during daylight.) Encourage the children to name their new moth and inform them of the night on which it will be released. Use this special event as the subject matter for a creative writing experience—"The Nighttime Adventures of (name)."

ART—NATURE'S WAY (p. 22)

Final Steps: (6) Small wildflowers, seeds, and leaves can be placed on the "sticky" surface of the surrounding circles—one type per circle. (Interesting and commonly found parts of wild plants are shown in the sample snowflake, all part of the woolly bear's natural world.) (7)After placing plant parts, children remove backing from second square of Con-Tact paper and lay it on a flat surface—"sticky" side up. The prepared "snowflake square" is carefully turned over onto the new "sticky" square. Press together to seal and remove any air bubbles. Cut extra Con-Tact away from the edge of snowflake. Hang and enjoy another example of nature-al art!

SNOWFLAKE SCIENCE (p. 23)

For free catalog write or call: DISCOVERY CORNER, Lawrence Hall of Science, University of California, Berkeley, CA 94720. Telephone: 415-642-1016 (Pacific Time)

MAKING THE MOST OF STANLEY'S STORY (p. 30)

Story Cards: Glue the numbered story paragraphs to seven large index cards (5" x 7"). Tape or staple a plastic Ziploc sandwich bag to the back of each card, opening downward. Use bag to hold story pieces described by numbered paragraphs on fronts of cards.

Card #1: ground, sleeping seed, snowflakes. **Card #2:** waking seeds, grass, bluebird, white roots, stem—small section, sun, cloud and raindrops. **Card #3:** Stem—add large section, leaves, flower, butterflies, honeybees, sun, moon and star. **Card #4:** "sipping" insects/aphids, flower face turned to "sad." **Card #5:** flying ladybug, remove "sipping" aphids. **Card #6:** egg-laying ladybug, eggs on stem, turn flower face to "happy." **Card #7:** ladybug resting on leaf.

Ladybug Facts: Children will enjoy spotting ladybugs in spring. As members of the largest insect family, the beetles, all adult ladybugs lift their wing covers before flying. Ladybug beetles are actually named by the number of spots on these wing covers, thus "Six Spots" in our story. Hungry ladybug young (Clue Card B) cannot fly and remain as protection on a plant, eating harmful insect pests, such as the "sipping" aphids that "poked holes in Stanley's tender stem." When the young is fully grown, it sheds its larval skin to reveal a pupa (Clue Card C). After a short time the pupa case cracks open and out will step a winged adult (Clue Card D), ready to help another plant with "insect problems."